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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,850	11/26/2002	Christian Maria Anton Heller	122023	3372

6147 7590 05/24/2007

GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER	
FICK, ANTHONY D	

ART UNIT	PAPER NUMBER
1753	

MAIL DATE	DELIVERY MODE
05/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/065,850	HELLER, CHRISTIAN MARIA ANTON	
	Examiner	Art Unit	
	Anthony Fick	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *12-18,22,23,26,27 and 37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-18,22,23,26,27 and 37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/27/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 5, 2007 has been entered.

Remarks

2. Applicant's amendments to the claims have overcome the rejections based on the references to Shiotsuka and JP 10-255982. The rejections based on those references are therefore withdrawn.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 12, 13, 22 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Suzuri et al (U.S. Patent 6,949,878).

Suzuri et al teaches an organic EL element having the instant compound electrode as shown in figure 7.

Regarding claim 12, Suzuri discloses the compound electrode comprises cathode buffer layer (electron injecting layer) (26), which reads on the instant first electrically conducting material and is made from, for example, a metal or LiF, and, in electrical contact with said layer (26) is a plurality of elongated members (27) made of aluminum (see Figure 7; col. 8, lines 54-62; col. 30, lines 60-66). As the elongated members are in contact with electrically conducting material 26, they are electrically interconnected. Suzuri also discloses that material 25, which is on a surface of the first layer opposite to the plurality of electrically interconnected, elongated members, is an electron-transporting layer (column 30, paragraph 2) and has a fluorescence wavelength (column 31, paragraph 1). Therefore, material 25 is an electrically and optically active organic material as required in the claim.

Regarding claim 13, the layer (26) has a thickness of, for example 0.5 nm, whereas the plurality of elongated members (27) each has a thickness of 200 nm (see col. 30, lines 60-66). Since Suzuri et al teaches the limitations of the instant claims, the reference is deemed to be anticipatory.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 12-18, 22, 23, 26, 27 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuri et al (U.S. Patent 6,949,878).

Suzuri et al teaches an organic EL element having the instant compound electrode, wherein the compound electrode comprises cathode buffer layer (electron injecting layer) (26), which reads on the instant first electrically conducting material and is made from, for example, a metal such as Sr or Al, or from LiF, and, in electrical contact with said layer (26) is a plurality of elongated members (27) made from Al (see Figure 7; col. 8, lines 54-62; col. 30, lines 60-66). As the elongated members are in contact with electrically conducting material 26, they are electrically interconnected. Suzuri also discloses that material 25, which is on a surface of the first layer opposite to the plurality of electrically interconnected, elongated members, is an electron-transporting layer (column 30, paragraph 2) and has a fluorescence wavelength (column 31, paragraph 1). Therefore, material 25 is an electrically and optically active organic material as required in the claim. The layer (26) has a thickness of, for example 0.5 nm, whereas the plurality of elongated members (27) each has a thickness of 200 nm (see col. 30, lines 60-66). Suzuri et al teaches the limitations of the instant claims, other than the differences which are discussed below.

With respect to claim 14, Suzuri et al do not specifically teach that its elongated members (27) intersect. The elongated members (27) are part of the cathode for the device (see col. 30, line 65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used intersecting lines, i.e., a mesh, rather than parallel lines for the cathode in Suzuri et al's device because such would

have been a matter of design choice. A skilled artisan would expect the device to function properly whether parallel lines or intersecting lines, such a mesh, are used for the cathode.

With respect to claims 15-17, Suzuri et al does not specifically teach the total surface area of its elongated members (27) with respect to the total surface area of said layer (26). However, Suzuri et al is not limited to any particular length and width for its members (27). The use of a length and width of the members (27) such that the members (27) have a surface area that is less than 50%, or less than 25%, or less than 10% of the surface area of the layer (26) would have been within the level of ordinary skill in the art so as to prepare a working organic EL element.

With respect to claim 18, when an area of short circuit is present in said layer (26), it is the Examiner's position that an area surrounding a point of the short circuit is capable of being ablated by heat generated by the short circuit because Suzuri et al's compound electrodes have the same structure as the instant compound electrode.

With respect to claims 23 and 27, Suzuri et al, as noted above, teaches that the layer (26) has a thickness of, for example 0.5 nm, whereas the plurality of elongated members (27) each has a thickness of 200 nm (see col. 30, lines 60-66). The layer (26) can, in general, have a thickness of 0.1 to 100 nm (see col. 8, lines 63-65). Suzuri et al does not specifically require that said layer (26) has a thickness of about 1 to about 25 nm as in said claims 23 and 27. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have prepared Suzuri et al's organic EL element such that the layer (26) has a thickness with the range of about

1 to about 25 nm because Suzuri et al exemplifies a thickness of 0.5 nm and teaches, in general, that the thickness can be from 0.1 to 100 nm.

With respect to claim 37, Suzuri et al does not specifically require a plurality of its organic EL elements disposed on a support. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have prepared a device with a plurality of Suzuri et al's organic EL elements on a support so that a desired pattern or display could be obtained.

7. The preceding rejections are all made on a specific interpretation of the amended claims. It is the position of the examiner that an interpretation of the amended claims allows for other elements to be present within the first layer of electrically conducting material, i.e. oxygen, fluorine or other halides. The prior art shows first layers containing elements of applicant's Markush group within the claims along with these extra elements (oxygen, fluorine, etc.) thus meeting this interpretation of the claims. An alternate interpretation is the claims require only the elements listed within the claims to be present within the first layer. Therefore the presence of any oxide, fluoride or other compound within the layer would not be the device claimed in the present invention. The following rejections are made on the basis of this interpretation of the claims.

8. Claims 12-18, 22, 23, 26, 27 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuri et al (U.S. Patent 6,949,878).

Suzuri et al teaches an organic EL element having the instant compound electrode, wherein the compound electrode comprises cathode buffer layer (electron injecting layer) (26), which reads on the instant first electrically conducting material and

is made from, for example, a metal such as Sr or Al, or from LiF, and, in electrical contact with said layer (26) is a plurality of elongated members (27) made from Al (see Figure 7; col. 8, lines 54-62; col. 30, lines 60-66). As the elongated members are in contact with electrically conducting material 26, they are electrically interconnected. Suzuri also discloses that material 25, which is on a surface of the first layer opposite to the plurality of electrically interconnected, elongated members, is an electron-transporting layer (column 30, paragraph 2) and has a fluorescence wavelength (column 31, paragraph 1). Therefore, material 25 is an electrically and optically active organic material as required in the claim. The layer (26) has a thickness of, for example 0.5 nm, whereas the plurality of elongated members (27) each has a thickness of 200 nm (see col. 30, lines 60-66). Suzuri et al teaches the limitations of the instant claims, other than the differences which are discussed below.

With respect to claims 12 and 37, Suzuri does not specifically teach using only the elements listed within the claim in the first layer of electrically conducting material.

Suzuri does teach a variety of electrically conductive materials that can be used within an electrode. The materials include sodium, sodium-potassium alloy, magnesium, lithium, magnesium/silver mixture, magnesium/indium mixture, indium, and aluminum oxide (column 8, paragraph 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the materials of Suzuri as the electrical conducting material in the cathode buffer layer because the materials are functional equivalents to the buffer layer material.

With respect to claim 14, Suzuri et al do not specifically teach that its elongated members (27) intersect. The elongated members (27) are part of the cathode for the device (see col. 30, line 65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used intersecting lines, i.e., a mesh, rather than parallel lines for the cathode in Suzuri et al's device because such would have been a matter of design choice. A skilled artisan would expect the device to function properly whether parallel lines or intersecting lines, such a mesh, are used for the cathode.

With respect to claims 15-17, Suzuri et al does not specifically teach the total surface area of its elongated members (27) with respect to the total surface area of said layer (26). However, Suzuri et al is not limited to any particular length and width for its members (27). The use of a length and width of the members (27) such that the members (27) have a surface area that is less than 50%, or less than 25%, or less than 10% of the surface area of the layer (26) would have been within the level of ordinary skill in the art so as to prepare a working organic EL element.

With respect to claim 18, when an area of short circuit is present in said layer (26), it is the Examiner's position that an area surrounding a point of the short circuit is capable of being ablated by heat generated by the short circuit because Suzuri et al's compound electrodes have the same structure as the instant compound electrode.

With respect to claims 23 and 27, Suzuri et al, as noted above, teaches that the layer (26) has a thickness of, for example 0.5 nm, whereas the plurality of elongated members (27) each has a thickness of 200 nm (see col. 30, lines 60-66). The layer (26)

can, in general, have a thickness of 0.1 to 100 nm (see col. 8, lines 63-65). Suzuri et al does not specifically require that said layer (26) has a thickness of about 1 to about 25 nm as in said claims 23 and 27. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have prepared Suzuri et al's organic EL element such that the layer (26) has a thickness with the range of about 1 to about 25 nm because Suzuri et al exemplifies a thickness of 0.5 nm and teaches, in general, that the thickness can be from 0.1 to 100 nm.

With respect to claim 37, Suzuri et al does not specifically require a plurality of its organic EL elements disposed on a support. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have prepared a device with a plurality of Suzuri et al's organic EL elements on a support so that a desired pattern or display could be obtained.

Response to Arguments

9. Applicant's arguments filed April 5, 2007 have been fully considered but they are not persuasive. Applicant argues that the Suzuri reference does not describe a structure wherein a second electrode is composed of elongated electrically interconnected members of cathode 27, and accordingly the reference does not anticipate the claims and the claims are not obvious over the reference. The examiner respectfully disagrees. As stated in the rejections above, the elongated members, 27, in Suzuri are in contact with an electrically conductive layer, 26. Therefore they are electrically interconnected with each other via that layer. Thus the reference does meet the requirements of the claims and the rejections are maintained.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Fick whose telephone number is (571) 272-6393. The examiner can normally be reached on Monday - Friday 7 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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May 22, 2007

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